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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/539,005	FREDRIKSSON, LARS-BERNO
	Examiner	Art Unit
	THOMAS J. CLEARY	2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-20* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *15 June 2005* is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some *   c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *20050615*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Requirement for Information

1.   Applicant and the assignee of this application are required under 37 CFR 1.105

to provide the following information that the examiner has determined is reasonably

necessary to the examination of this application.

2.   In response to this requirement, please provide a copy of each of the following

items of art referred to in the specification: "Controller area network (CAN) B Part 4:

Time-triggered communication" ISO/CD 11898-4 (See Page 2); IEEE Micro July-August

2002 (See Pages 2 and 8); and H. Kopetz, "TTP/C Protocol", TTTech 1999 (See Page

2).

3.   In responding to those requirements that require copies of documents, where the

document is a bound text or a single article over 50 pages, the requirement may be met

by providing copies of those pages that provide the particular subject matter indicated in

the requirement, or where such subject matter is not indicated, the subject matter found

in applicant's disclosure.

4.   The fee and certification requirements of 37 CFR 1.97 are waived for those

documents submitted in reply to this requirement. This waiver extends only to those

documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

5. The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained may be accepted as a complete reply to the requirement for that item.

6. This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, Machino, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8.   Claim 14 is rejected under 35 U.S.C. 101 because the disclosed invention is

inoperative and therefore lacks utility. Claim 16 recites the limitation of the selected

priority increases with increasing transmission time in order to make impossible

immediate retransmission of messages that have been discarded. However, increasing

the priority of a message as the transmission time increases will not make immediate

retransmission impossible. A message will be retransmitted when there are no other

messages having a higher priority. If a discarded message has a higher priority than all

other messages, it will be retransmitted immediately, regardless of whether its priority

increases as the transmission time increases. Thus, increasing the priority with

transmission time will not make immediate retransmission impossible.

9.   Claims 17 and 20 are rejected under 35 U.S.C. 101 because the claimed

recitation of a use, without setting forth any steps involved in the process, results in an

improper definition of a process, i.e., results in a claim which is not a proper process

claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App.

1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C.

1966).

Claim Rejections - 35 USC § 112

10.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11.   Claims 5 and 6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 5 and 6 recite the term "pre-ignition". However, the specification does not make clear what is meant by "pre-ignition". Claims 5 and 6 appear to use the term "pre-initiation" as a substitute for "pre-ignition", however, this term is also not defined in the specification and it is unclear as to what is meant by "pre-initiation". One of ordinary skill in the art, therefore, would not be able to make and/or use the invention.

12.   Claim 14 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 16 recites the limitation of the selected priority increases with increasing transmission time in order to make impossible immediate retransmission of messages that have been discarded. However, increasing the priority of a message as the transmission time increases will not make immediate retransmission impossible. A message will be retransmitted when there are no other messages having a higher

priority. If a discarded message has a higher priority than all other messages, it will be

retransmitted immediately, regardless of whether its priority increases as the

transmission time increases. Thus, increasing the priority with transmission time will not

make immediate retransmission impossible.

13.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

14.   Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

15.   In reference to Claim 1, the phrase "preferably" in Line 1 renders the claim

indefinite because it is unclear whether the limitation(s) following the phrase are part of

the claimed invention. See MPEP § 2173.05(d).

16.   Claim 1 recites the limitation "the system's bus connection" in Line 2. There is

insufficient antecedent basis for this limitation in the claim.

17.   In reference to Claim 1, the term "and/or" is used in Line 3. It is unclear if this is

intended to require all of the elements of the list (unitive), or at least one of the elements

of the list (alternative).

18.   In reference to Claim 2, the phrase "at least" in Line 2 renders the claim indefinite

because it is unclear whether the limitation(s) following the phrase are part of the

claimed invention. See MPEP § 2173.05(d).

19.   The term "ideal conditions" in Claim 2 is a relative term which renders the claim

indefinite. The term "ideal conditions" is not defined by the claim, the specification does

not provide a standard for ascertaining the requisite degree, and one of ordinary skill in

the art would not be reasonably apprised of the scope of the invention. It is unclear as

to what conditions are considered ideal.

20.   Claim 3 recites the limitation "the different nodes" in Line 2. There is insufficient

antecedent basis for this limitation in the claim.

21.   Claim 3 recites the limitation "the virtual clock" in Line 2. There is insufficient

antecedent basis for this limitation in the claim.

22.   Claim 4 recites the limitation "the different nodes" in Line 2. There is insufficient

antecedent basis for this limitation in the claim.

23.   Claim 4 recites the limitation "the different nodes are arranged to be

synchronized in different ways" in Line 2. It is unclear if the synchronization way differs

between each node, or of each node has a plurality of different ways of being

synchronized.

24.   Claim 4 recites the limitation "the virtual clock" in Line 4. There is insufficient

antecedent basis for this limitation in the claim.

25.   Claim 4 recites the limitation "the virtual schedule that concerns the respective

node" in Line 4-5. There is insufficient antecedent basis for this limitation in the claim.

26.   Claim 4 recites the limitation "the bus" in Lines 5-6. There is insufficient

antecedent basis for this limitation in the claim. It is unclear if this is intended to refer to

"the system's bus connection" of Claim 1.

27.   Claim 4 recites the limitation "the preceding time slot" in Line 7. There is

insufficient antecedent basis for this limitation in the claim.

28.   Claim 4 recites the limitation "whereby the highest possible bandwidth is made

possible". It is unclear as to what is meant by this limitation, as the "highest possible

bandwidth" is already possible (it is the highest *possible* bandwidth), and thus it is

unclear as to how a possible bandwidth is made possible.

29.   Claim 5 recites the limitation "pre-initiation ('pre-ignition')" in Line 3. It is unclear

if pre-initiation is intended to refer to the same thing as pre-ignition, as the specification

does not refer to pre-initiation, but only to pre-ignition. It is further unclear as to what is

meant by pre-ignition, as the specification does not define this term, and the term is not

commonly known in the art of computer bus transmissions. Where applicant acts as his

or her own lexicographer to specifically define a term of a claim contrary to its ordinary

meaning, the written description must clearly redefine the claim term and set forth the

uncommon definition so as to put one reasonably skilled in the art on notice that the

applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim

Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

30.   Claim 5 recites the limitation "the local clocks" in Lines 3-4. There is insufficient

antecedent basis for this limitation in the claim.

31.   In reference to Claim 5, the phrase "for example" in Line 4 renders the claim

indefinite because it is unclear whether the limitation(s) following the phrase are part of

the claimed invention. See MPEP § 2173.05(d).

32.   Claim 5 recites the limitation "the virtual time for transmission" in Line 4. There is

insufficient antecedent basis for this limitation in the claim.

33.   Claim 5 recites the limitation "the previous time slot" in Lines 4-5. There is

insufficient antecedent basis for this limitation in the claim.

34.   Claim 5 recites the limitation "the clocks of the sending and receiving modules" in

Line 6. There is insufficient antecedent basis for this limitation in the claim. It is unclear

if "the clocks" refers to the "local clocks" of Claim 5, the "actual clocks" of Claim 2, or

another clock.

35.   Claim 5 recites the limitation "the sending and receiving modules" in Line 6.

There is insufficient antecedent basis for this limitation in the claim.

36.   In reference to Claim 5, it is unclear as to whether the limitation "and in that the

maximum deviation between the virtual clock and the clocks of the sending and

receiving modules is less than half the time slot" is one of the conditions upon which the

oscillation of the schedule depends, as it is separated from the other conditions by a

semicolon. It is further unclear if the conditions upon which the oscillation of the

schedule depends require all of the conditions of the list (unitive), or at least one of the

conditions of the list (alternative).

37.   Claim 6 recites the limitation "the schedule" in Lines 6 and 8. There is insufficient

antecedent basis for this limitation in the claim. It is unclear if "the schedule" refers to

the "actual schedule" or the "virtual schedule".

38.   Claim 6 recites the limitation "the identity of the message" in Line 7. There is

insufficient antecedent basis for this limitation in the claim.

39.   Claim 6 recites the limitation "pre-initiation ('pre-ignition')" in Line 8. It is unclear

if pre-initiation is intended to refer to the same thing as pre-ignition, as the specification

does not refer to pre-initiation, but only to pre-ignition. It is further unclear as to what is

meant by pre-ignition, as the specification does not define this term, and the term is not

commonly known in the art of computer bus transmissions. Where applicant acts as his

or her own lexicographer to specifically define a term of a claim contrary to its ordinary

meaning, the written description must clearly redefine the claim term and set forth the

uncommon definition so as to put one reasonably skilled in the art on notice that the

applicant intended to so redefine that claim term. *Process Control Corp. v. HydReclaim

Corp.*, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cir. 1999).

40.   Claim 6 recites the limitation "the use of CAN" in Line 8. There is insufficient

antecedent basis for this limitation in the claim. Claim 1, from which Claim 6 depends,

states only that a CAN system is preferable, not required.

41.   In reference to Claim 7, the term "and/or" is used in Line 4. It is unclear if this is

intended to require all of the elements of the list (unitive), or at least one of the elements

of the list (alternative).

42.   Claim 8 recites the limitation "the allocated time slot" in Line 3. There is

insufficient antecedent basis for this limitation in the claim.

43.   Claim 8 recites the limitation "the virtual clock" in Line 4. There is insufficient

antecedent basis for this limitation in the claim.

44.   Claim 8 recites the limitation "the module concerned" in Line 6. There is

insufficient antecedent basis for this limitation in the claim.

45.   Claim 8 recites the limitation "the module concerned, its receiver, sorts out the

correct message" in Line 6. It is unclear whether it is the module concerned, or its

receiver, that sorts out the correct message. It is further unclear whether "its receiver"

refers to a receiver unit of the module concerned, or to the receiver of a message from

the module concerned.

46.   Claim 8 recites the limitation "the number of possibilities" in Line 7. There is

insufficient antecedent basis for this limitation in the claim. It is unclear as to what there

are a number of possibilities of.

47.   Claim 8 recites the limitation "in advance" in Lines 7 and 8. It is unclear as to

what event the actions occur in advance of.

48.   Claim 9 recites the limitation "the respective time slot" in Line 2. There is

insufficient antecedent basis for this limitation in the claim.

49.   Claim 9 recites the limitation "the margin for the length of the time slots" in Lines

3-4. There is insufficient antecedent basis for this limitation in the claim.

50.   Claim 9 recites the limitation "the time slots" in Lines 3-4. There is insufficient

antecedent basis for this limitation in the claim.

51.   Claim 9 recites the limitation "on the basis of stuffing bits of 24%" in Line5. It is

unclear as to what the stuffing bits are 24% of.

52.   Claim 10 recites the limitation "the real-time time schedule" in Line 2. There is

insufficient antecedent basis for this limitation in the claim.

53.   Claim 10 recites the limitation "the CAN characteristic" in Line 5. There is

insufficient antecedent basis for this limitation in the claim. Claim 1, from which Claim

10 depends, states only that a CAN system is preferable, not required.

54.   Claim 10 recites the limitation "a discarded message being retransmitted

immediately depending on its priority" in Lines 6-7. It is unclear how a message can be

retransmitted immediately and depending on its priority, as only the message with the

highest priority will be retransmitted immediately, while other messages with lower

priority will not be retransmitted immediately.

55.   Claim 10 recites the limitation "the allocated time slot" in Line 8. There is

insufficient antecedent basis for this limitation in the claim.

56.   Claim 10 recites the limitation "the total system" in Line 10. There is insufficient

antecedent basis for this limitation in the claim.

57.   Claim 10 recites the limitation "the previous message" in Line 10. There is

insufficient antecedent basis for this limitation in the claim.

58.   Claim 10 recites the limitation "the next" in Line 10. There is insufficient

antecedent basis for this limitation in the claim.

59.   Claim 11 recites the limitation "the same way" in Line 3. There is insufficient

antecedent basis for this limitation in the claim.

60.   Claim 11 recites the limitation "the discarded message" in Line 5. There is

insufficient antecedent basis for this limitation in the claim.

61.   In reference to Claim 11, the term "essentially" is a relative term which renders

the claim indefinite. The term "essentially" is not defined by the claim, the specification

does not provide a standard for ascertaining the requisite degree, and one of ordinary

skill in the art would not be reasonably apprised of the scope of the invention. It is

unclear as to what percentage of bus connection utilization is considered to be

essentially 100%.

62.   Claim 11 recites the limitation of a short and easily predicable [sic] waiting time

for each message. It is unclear as to how the waiting time is predictable, as the

message is only transmitted after all others with a higher priority have been transmitted.

As there is no way of knowing how many messages will have a higher priority, it is

unclear as to how the waiting time of a message can be determined.

63.   Claim 12 recites the limitation "the virtual schedule" in Line 3. There is

insufficient antecedent basis for this limitation in the claim.

64.   Claim 12 recites the limitation "the main part of the available bandwidth" in Lines

4-5. There is insufficient antecedent basis for this limitation in the claim. It is unclear as

to what part of the available bandwidth is considered to be the main part.

65.   Claim 12 recites the limitation "in spite of the fact that the main part of the

available bandwidth for the normal communication is utilized" in Lines 4-5. Neither

Claim 1 nor Claim 5 establishes that the main part of the available bandwidth for normal communication is utilized.

66.   In reference to Claim 13, the phrase "for example" in Line 2 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

67.   In reference to Claim 14, the phrase "for example" in Line 2 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

68.   Claim 14 recites the limitation "the selected priority" in Line 3. There is insufficient antecedent basis for this limitation in the claim.

69.   In reference to Claim 15, the phrase "even if" in Line 2 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

70.   In reference to Claim 15, the term "basically" in Line 3 is a relative term which renders the claim indefinite. The term "basically" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the

invention. It is unclear as to how much a system must be time-controlled to be basically time-controlled.

71.   Claim 16 recites the limitation "the actual schedule" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

72.   Claim 16 recites the limitation "the respective modules" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

73.   Claim 16 recites the limitation "the virtual schedule" in Line 3. There is insufficient antecedent basis for this limitation in the claim.

74.   Claim 17 recites the limitation "the CAN system" in Line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 1, from which Claim 17 depends, states only that a CAN system is preferable, not required.

75.   Claim 17 recites the limitation "the known technology" in Lines 3-4. There is insufficient antecedent basis for this limitation in the claim.

76.   Claim 17 recites the limitation "the known system or systems" in Line 4. There is insufficient antecedent basis for this limitation in the claim.

77.   Claim 17 provides for the use of the arrangement, but, since the claim does not

set forth any steps involved in the method/process, it is unclear what method/process

applicant is intending to encompass. A claim is indefinite where it merely recites a use

without any active, positive steps delimiting how this use is actually practiced.

78.   In reference to Claim 18, the term "and/or" is used in Lines 2 and 6. It is unclear

if this is intended to require all of the elements of the list (unitive), or at least one of the

elements of the list (alternative).

79.   Claim 18 recites the limitation "the module's event or function" in Line 4. There is

insufficient antecedent basis for this limitation in the claim.

80.   In reference to Claim 18, the phrase "for example" in Line 3renders the claim

indefinite because it is unclear whether the limitation(s) following the phrase are part of

the claimed invention. See MPEP § 2173.05(d).

81.   Claim 18 recites the limitation "the transfer interval" in Line 6. There is

insufficient antecedent basis for this limitation in the claim.

82.   Claim 18 recites the limitation "the value" in Line 7. There is insufficient

antecedent basis for this limitation in the claim.

83.   In reference to Claim 20, the term "essentially" is a relative term which renders the claim indefinite. The term "essentially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

84.   Claim 20 recites the limitation "the advantages that it provides" in Line 3. There is insufficient antecedent basis for this limitation in the claim.

85.   Claim 20 provides for the use of the arrangement, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

86.   Dependent claims inherit the indefiniteness of their parent claims and are rejected under the same reasoning.

87.   The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

> Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

88.   Claims 17, 19, and 20 are rejected under 35 U.S.C. 112, fourth paragraph, for failing to further limit the parent claim.

89.   Claim 17 provides for the use of the arrangement, but provides no further

limitations beyond the use.

90.   Claim 19 recites the limitation that the arrangement works with a combination of

event-driven and time-based scheduling. Claim 1, from which Claim 19 depends,

recites the limitation of the communication...constitutes a combination of event-driven

and time-controlled communication functions.

91.   Claim 20 provides for the use of the arrangement, but provides no further

limitations beyond the use.

Claim Objections

92.   Claim 11 is objected to because of the following informalities: Claim 11 uses the

term "predicable" instead of the term "predictable" in Line 8. Appropriate correction is

required.

Claim Rejections - 35 USC § 102

93.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

94.   Claims 1-4, 7-8, 10-13, and 15-20 are rejected under 35 U.S.C. 102(b) as being

anticipated by US Patent Number 4,719,620 to Machino et al. ("Machino").

95.   In reference to Claim 1, Machino discloses an arrangement for making more

efficient the utilization of available bandwidth on the system's bus connection between,

from or to modules incorporated in the system (See Column 2 Lines 35-39) or reduction

of accuracy requirements of clock functions utilized in the system (See Column 2 Lines

39-40 and 62-67), the system working with a communication carried out on the bus

connection (See Column 1 Lines 8-9), which communication operates in accordance

with rules set up in the system and constitutes a combination of event-driven (See

Column 3 Lines 47-51) and time-controlled communication functions (See Column 3

Lines 40-47), characterized in that the said functions, together with a rule change in the

time-controlled communication function, are arranged to achieve the said making more

efficient and/or reduction, which rule change is arranged to give rise to deliberate

collisions between messages appearing on the bus connection (See Column 3 Lines 26-66).

96.   In reference to Claim 2, Machino discloses the limitations as applied to Claim 1 above. Machino further discloses that a virtual time schedule that is used is arranged to ensure that each message, at least those that occur in normal operating conditions, is allocated a time according to a virtual clock where the transmission of the message is to commence in ideal conditions; in that each module is able to be allocated an actual schedule, related to an actual clock in the module, for transmission of the message; in that the time of transmission is arranged to be earlier than the time allocated in the virtual schedule; and in that actual clocks in the modules are set in relation to the virtual clock (See Column 3 Lines 26-66).

97.   In reference to Claim 3, Machino discloses the limitations as applied to Claim 1 above. Machino further discloses that the different nodes are arranged to base their time in relation to the virtual clock on different references in the system (See Column 3 Lines 26-38).

98.   In reference to Claim 4, Machino discloses the limitations as applied to Claim 1 above. Machino further discloses that the different nodes are arranged to be synchronized in different ways; in that each node sets the time for transmission and reception of messages within a given tolerance in relation to the virtual clock and the

part of the virtual schedule that concerns the respective node; in that transmission

attempts are arranged to be commenced when the bus is free; in that slots arise in the

communication; and in that the transmission takes place in the preceding time slot and

a collision detecting mechanism comprised in the system enables the message to be

sent as soon as possible, whereby the highest possible bandwidth utilization is made

possible (See Column 3 Lines 26-66).

99.   In reference to Claim 7, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that each message is provided with a unique identity,

whereby a redundancy arises in the communication which is able to be utilized for the

making more efficient and/or the reduction (See Column 2 Line 59 – Column 3 Line 2).

100.   In reference to Claim 8, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that messages are arranged to be able to be

transmitted in time slots on both sides of the allocated time slot, which is carried out by

allowing a greater deviation from the virtual clock than half a time slot; and in that

messages are arranged to change places, which is made possible because they are

provided with an identity and the module concerned, its receiver, sorts out the correct

message, which is made possible by the number of possibilities being limited in

advance and by availability of the requisite bandwidth being ensured in advance (See

Column 3 Lines 26-66).

101.   In reference to Claim 10, Machino discloses the limitations as applied to Claim 1
above. Machino further discloses that by allowing the real-time time schedule to vary,
by utilizing collision detection without discard with immediate transmission after the
termination of the collision and by using a unique identity for each message and, in
addition, by utilizing the characteristic that each identity is associated with a unique
priority and by a discarded message being retransmitted immediately depending on its
priority, the making more efficient or the reduction is achieved; in that by allowing the
automatic retransmission and co-coordinating the allocated time slot with the message's
priority, the communication's characteristics are tailored according to the requirements
of the total system; and in that if the previous message has higher priority than the next,
the previous message goes out on the bus immediately in the event of retransmission
(See Column 3 Lines 26-66).

102.   In reference to Claim 11, Machino discloses the limitations as applied to Claim 1
above. Machino further discloses that lost messages compete with subsequent
messages in the same way; in that if all following messages have lower priority, the
retransmission will result in the following messages being displaced one time slot; in
that if the following message has higher priority than the discarded message, the
discarded message will not go out onto the bus connection until there is a message with
lower priority or the bus connection becomes free; and in that in this way an essentially
100% bus connection utilization is achieved by means of a short and easily predicable
waiting time for each message (See Column 2 Line 52 – Column 3 Line 2).

103.   In reference to Claim 12, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that by arranging the system so that it allows

messages to change position in the virtual schedule within given limits, it is made

possible that alarm messages are not sent according to schedule, in spite of the fact

that the main part of the available bandwidth for the normal communication is utilized

(See Column 2 Line 52 – Column 3 Line 2).

104.   In reference to Claim 13, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that with the use of protocols, for example CAN,

where each message has a unique priority in the system and retransmission is carried

out of messages that have been discarded (See Column 1 Lines 58-53, Column 2 Lines

35-40, and Column 3 Lines 62-65).

105.   In reference to Claim 15, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that the system comprises a hierarchy of virtual

clocks; and in that even if the system is complex or extensive and is basically time-

controlled, one or more, even in an extreme case all, of the modules are arranged

without multiple clocks (See Column 3 Lines 39-40).

106.   In reference to Claim 16, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that the actual schedule is constructed by the

respective modules being programmed to send their messages in relation to the virtual

schedule (See Column 3 Lines 26-66).

107.   In reference to Claim 17, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that characteristics in the system can be used in

order to make possible the carrying out of other functions than those that are possible

with the known technology or with the known system or systems (See Column 3 Lines

26-66).

108.   In reference to Claim 18, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that the transfer interval is changed in the event of

the occurrence of a change in the value (See Column 3 Lines 47-51).

109.   In reference to Claim 19, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that the arrangement works with a combination of

event-driven (See Column 3 Lines 47-51) and time-based scheduling (See Column 3

Lines 40-47).

110.   In reference to Claim 20, Machino discloses the limitations as applied to Claim 1

above. Machino further discloses that the arrangement is arranged to achieve an

increase in performance for the system by means of the advantages it provides (See

Abstract).

111. Claims 1, 17, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated

by US Patent Number 4,516,239 to Maxemchuk ("Maxemchuk").

112. In reference to Claim 1, Maxemchuk discloses an arrangement for making more

efficient the utilization of available bandwidth on the system's bus connection between,

from or to modules incorporated in the system (See Column 2 Lines 1-18), the system

working with a communication carried out on the bus connection (See Column 2 Lines

42-49), which communication operates in accordance with rules set up in the system

and constitutes a combination of event-driven (See Column 2 Lines 44-45) and time-

controlled communication functions (See Column 2 Lines 42-44), characterized in that

the said functions, together with a rule change in the time-controlled communication

function, are arranged to achieve the said making more efficient and/or reduction, which

rule change is arranged to give rise to deliberate collisions between messages

appearing on the bus connection (See Column 9 Line 63 – Column 10 Line 28).

113. In reference to Claim 17, Maxemchuk discloses the limitations as applied to

Claim 1 above. Maxemchuk further discloses that characteristics in the system can be

used in order to make possible the carrying out of other functions than those that are

possible with the known technology or with the known system or systems (See

Abstract).

114.   In reference to Claim 19, Maxemchuk discloses the limitations as applied to

Claim 1 above. Maxemchuk further discloses that the arrangement works with a

combination of event-driven (See Column 2 Lines 44-45) and time-based scheduling

(See Column 2 Lines 42-44).

115.   In reference to Claim 20, Maxemchuk discloses the limitations as applied to

Claim 1 above. Maxemchuk further discloses that the arrangement is arranged to

achieve an increase in performance for the system by means of the advantages it

provides (See Abstract).

Drawings

116.   The drawings are objected to because Figures 1 and 2 do not contain suitable

legends necessary to understand the drawing. See 37 CFR 1.84(o). While Figures 1-8

have reference numbers for the different elements of the invention, the empty frames

are not sufficient for understanding the figures. Therefore adequately descriptive

legends are required by the examiner.

117.   The drawings are objected to because Figure 2 uses the term "Modul" instead of

"Module".

118.   Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in

reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. The replacement sheet(s) should be labeled "Replacement

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of

the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Specification

119.   The disclosure is objected to because it contains an embedded hyperlink and/or

other form of browser-executable code (See Page 2). Applicant is required to delete the

embedded hyperlink and/or other form of browser-executable code. See MPEP §

608.01.

Information Disclosure Statement

120.   The information disclosure statement (IDS) submitted on 15 June 2005 is in

compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure

statement is being considered by the examiner.

Conclusion

121.   The following prior art made of record and not relied upon is considered pertinent

to applicant's disclosure: US Patent Number 6,181,708 to Quackenbush et al.; US

Patent Number 5,353,287 to Kuddes et al.; US Patent Number 4,739,323 to Miesterfeld

et al.; US Patent Number 5,841,778 to Shaffer et al.; European Patent Application

Publication Number EP1017198A2 to Himbeault and "A CAN Kingdom" Revision 3.01

by Fredriksson.

122.   This Office action has an attached requirement for information under 37 CFR

1.105. A complete reply to this Office action must include a complete reply to the

attached requirement for information. The time period for reply to the attached

requirement coincides with the time period for reply to this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS J. CLEARY whose telephone number is (571)272-3624. The examiner can normally be reached on Monday-Thursday (7-3).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas J. Cleary/
Patent Examiner, Art Unit 2111